PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Zou et al.

Serial No.: 10/642,531

Filed: August 15, 2003

For: BRASSICA PYRUVATE DEHYDROGENASE KINASE GENE

Confirmation No.: 3187

Examiner: B. Koroma

Group Art Unit: 1638

Attorney Docket No.: 3015-6072US

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PETITION TO COMMISSIONER PURSUANT TO 37 CFR §1.144

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I. Introduction

Applicants respectfully Petition the Commissioner, pursuant to 37 CFR §1.144, to rescind the Examiner's Restriction Requirement of December 30, 2004 because only four nucleotide sequences are claimed, all of which are related, and the search of all four sequences should not be an undue burden on the Examiner or the Office. For the convenience of the Commissioner, the claims are presented below as they existed on the mailing date of the Office Action of April 21, 2005. Further, Applicants have included an Appendix with (1) the Restriction Requirement of December 30, 2004; (2) Applicant's Response to the Restriction Requirement of December 30, 2004; and, (3) the Office Action of April 21, 2005 for the convenience of the Commissioner.

II. In the Claims:

1. (original) A genetically transformed plant, comprising:

a means for modulating mitochondrially generated acetyl-CoA and/or respiration rate in the genetically transformed plant as compared to a genomically-unmodified plant of the same genotype; and

a promoter operatively linked to the means for reducing plant respiration.

2. (original) The genetically transformed plant of claim 1, wherein the means for modulating mitochondrially generated acetyl-CoA and/or respiration rate is a nucleic acid incorporated into the plant's genome having a sequence selected from the group of sequences consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3 and SEQ ID NO:4.

3. (original) The genetically transformed plant of claim 1, wherein the plant selected from the group consisting of borage, Canola, castor, cocoa bean, corn, cotton, *Crambe* spp., *Cuphea* spp., flax, *Lesquerella* and *Limnanthes* spp., Linola, nasturtium, *Oenothera* spp., olive, palm, peanut, rapeseed, safflower, soybean, sunflower, tobacco, *Vernonia* spp., wheat, barley, rice, oat, sorghum, rye, and other members of the *Gramineae*.

4. (original) The genetically transformed plant of claim 3, wherein the plant is Canola.

5. (original) The genetically transformed plant of claim 1, wherein the means for modulating mitochondrially generated acetyl-CoA and/or respiration rate includes a gene encoding a pyruvate dehydrogenase kinase oriented in an anti-sense direction.

6. (original) The genetically transformed plant of claim 1, wherein the promoter is a ubiquitin gene promoter.

7. (original) The genetically transformed plant of claim 1, wherein the promoter is a

phaseolin promoter.

8. (original) A process for modulating mitochondrially generated acetyl-CoA and/or respiration rate in a transgenic plant, the process comprising:
cloning a gene encoding a *Brassica* pyruvate dehydrogenase kinase protein into a vector;
positioning the gene in an anti-sense orientation; and
transforming a plant with the vector to produce the transgenic plant.

9. (original) The process according to claim 8, further comprising:
linking a promoter to the gene.

10. (original) The process according to claim 9, wherein the promoter is a ubiquitin gene promoter or a phaseolin promoter.

11. (original) The process according to claim 8, wherein the gene has a sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3 and SEQ ID NO:4.

12. (original) The process according to claim 8, wherein the plant is selected from the group consisting of borage, Canola, castor, cocoa bean, corn, cotton, *Crambe* spp., *Cuphea* spp., flax, *Lesquerella* and *Limnanthes* spp., Linola, nasturtium, *Oenothera* spp., olive, palm, peanut, rapeseed, safflower, soybean, sunflower, tobacco, *Vernonia* spp., wheat, barley, rice, oat, sorghum, rye, and other members of the *Gramineae*.

13. (original) The process according to claim 12, wherein the plant is Canola.

14. (original) A transgenic plant obtained by the process according to claim 8.

15. (original) A process for modulating mitochondrially generated acetyl-CoA and/or respiration rate in a transgenic plant, the process comprising:

cloning a gene encoding a *Brassica* pyruvate dehydrogenase kinase protein into a vector;

reducing production of the *Brassica* pyruvate dehydrogenase kinase protein in the transgenic plant; and

transforming the vector into a plant to produce the transgenic plant.

16. (original) The process according to claim 15, wherein the gene has a sequence selected from the group of sequences consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3 and SEQ ID NO:4.

17. (original) The process according to claim 15, wherein the plant is selected from the group consisting of borage, Canola, castor, cocoa bean, corn, cotton, *Crambe* spp., *Cuphea* spp., flax, *Lesquerella* and *Limnanthes* spp., Linola, nasturtium, *Oenothera* spp., olive, palm, peanut, rapeseed, safflower, soybean, sunflower, tobacco, *Vernonia* spp., wheat, barley, rice, oat, sorghum, rye, and other members of the *Gramineae*.

18. (original) The process according to claim 17, wherein the plant is Canola.

19. (original) The process according to claim 15, wherein the step for reducing production of the *Brassica* pyruvate dehydrogenase kinase protein comprises positioning the gene encoding the *Brassica* pyruvate dehydrogenase kinase protein in an anti-sense orientation in the vector.

20. (original) A transgenic plant produced by the process according to claim 15.

21. (previously presented) A combination of DNA fragments comprising SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3 and SEQ ID NO:4.

III. Remarks

A. Facts

Applicants are petitioning to rescind the restriction requirement of December 30, 2004 as follows: Applicants respectfully request that the restriction requirement be rescinded as to SEQ ID NOS: 1, 2, 3 and 4, as these are four related nucleotide sequences, and that all related claims withdrawn by the Examiner be rejoined. A summary of the Restriction Requirement is presented below:

The Examiner begins the restriction requirement by asserting that claims 1-20 of Applicants' invention are drawn to a genetically transformed plant, comprising a means for modulating mitochondrially generated acetyl-CoA and/or respiration rate as compared to a genomically-unmodified plant of the same genotype, using anti-sense nucleotides targeting the Brassica pyruvate dehydrogenase kinase protein, and an ubiquitin or phaseolin gene promoter operatively linked to the means for reducing respiration. The Examiner then states that different nucleotide sequences are structurally distinct chemical compounds and are unrelated to one another. The Examiner concludes that the sequences are to be deemed to constitute independent and distinct inventions within the meaning of 35 U.S.C. 121 absent evidence to the contrary. The Examiner then states that this requirement is not to be construed as a requirement for an election of species because each nucleotide sequence is not a member of a single genus of invention, but constitutes an independent and patentably distinct invention. Further, the Examiner made a point of reminding Applicants that for the reply to this requirement to be complete it must include an election of the invention to be examined even though the requirement be traversed, i.e., one of SEQ ID NOS: 1-4.

In response to the Restriction Requirement, Applicants provisionally elected, with traverse, SEQ ID NO: 1. Applicants traversed the requirement because the Commissioner has determined that up to ten nucleotide sequences will be examined in a single application, it would not be an undue burden on the Examiner to examine four sequences, and it would be an undue burden on the applicants to require the applicants to file, prosecute and pay for four separate applications to have SEQ ID NOS: 1-4 examined. Further, Applicants provided to the Examiner evidence that the four sequences, SEQ ID NOS: 1-4 are related.

B. Argument

In response to Applicants' traversal submitted in the Response to the Restriction Requirement on January 27, 2005, the Examiner stated that Applicants' arguments are not found persuasive because "up to ten nucleotides" includes one nucleotide sequence as required in the restriction election requirement, which meets the Commissioner's requirement. The Examiner maintained that the amount of machine, and personnel time, and the additional amount of physical resources required to prosecute more than one sequence, will make it burdensome to prosecute multiple sequences in a single application. The Examiner concluded by making the restriction requirement Final.

Applicants respectfully request that all of the sequences, SEQ ID NOS: 1-4, be examined because the Commissioner has determined that up to ten nucleotide sequences will be examined in a single application. The Commissioner for Patents has recognized the substantial burden on the biotechnology industry if every sequence were to be treated as an independent and distinct invention and multiple sequences were not capable of being examined together. Thus, "the Commissioner has decided *sua sponte* to partially waive the requirements of 37 C.F.R. §1.141 *et seq.* and permit a reasonable number of such nucleotide sequences to be claimed in a single application... [a]ccordingly, in most cases, up to **ten** independent and distinct nucleotide sequences will be examined in a single application **without restriction**." (M.P.E.P. § 803.04; *see also*, MPEP § 2434, allowing, "in most cases, up to 10 independent and distinct nucleotide sequences" to be examined in a single application) (emphasis added). As such, Applicants request examination of only **four** sequences (SEQ ID NOS: 1-4), all of which are related.

SEQ ID NOS: 1-4 are PDHK cDNAs of *Brassica napus*, *Brassica rapa*, *Brassica oleracea* and *Brassica carinata*, respectively, and are related in that the sequences encode a Brassica PDHK and the sequences are all of a single genus (*i.e.*, Brassica). Accordingly, Applicants have provided evidence that the sequences are related and should be examined together.

Applicants also question the statutory and regulatory basis for the finding that each sequence in the application constitutes an independent and distinct invention within the meaning of 35 U.S.C. § 121. (*cf*, M.P.E.P. § 803.04 (wherein ten nucleotide sequences are allowed in one application)). Thus, Applicants respectfully requested the Examiner to provide the statutory and

regulatory basis for the instant "sequence election."

As stated in the statute "if two or more independent and distinct inventions are claimed in one application, the Director may require the application to be restricted to one of the inventions." (35 U.S.C. § 121). The statute does not provide for a restriction where there are allegedly two of more inventions within a single claim. ***In re Weber***, 580 F.2d 455, 459-460 (C.C.P.A. 1978)(J. Rich *concurring*). The rules implementing the statue recite "if two or more independent and distinct inventions are claimed in a single application, the examiner in an Office action will require the applicant in the reply to that action to elect an invention to which the claims will be restricted" (37 C.F.R. § 1.142) (emphasis added) and "in the first action on an application containing a generic claim to a generic invention (genus) and claims to more than one patentably distinct species embraced thereby, the examiner may require the applicant in the reply to that action to elect a species of his or her invention to which his or her claim will be restricted." (*Id.* at § 1.146). Accordingly, Applicants respectfully request the Commissioner rescind the restriction requirement and direct the examiner to examine SEQ ID NOS: 1-4.

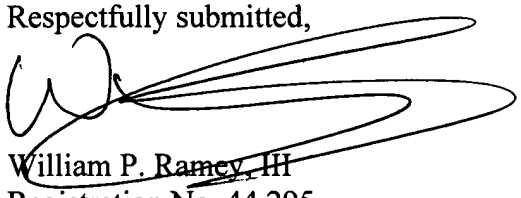
IV. Conclusion

Accordingly, Applicants request the Commissioner rescind the Restriction Requirement because:

1) the Commissioner decided to aid the biotechnology industry and have ten sequences examined in a single application;
2) SEQ ID NOS: 1-4 are related; and,
3) the M.P.E.P. indicates that each sequence in a combination claim of up to ten sequences will be examined.

Accordingly, reconsideration of the restriction requirement is requested. Group I should include SEQ ID NOS: 1-4.

Respectfully submitted,



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,531	08/15/2003	Elizabeth-France Marillia	3015-6072US	3187

24247 7590 12/30/2004

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EXAMINER	
KOROMA, BARBA M	
ART UNIT	PAPER NUMBER
1638	

DATE MAILED: 12/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/642,531	MARILLIA ET AL.	
	Examiner	Art Unit	
	Barba M. Koroma	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 August 2003*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-20* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Claims 1-20 are drawn to a genetically transformed plant, comprising a means for modulating mitochondrially generated acetyl-CoA and/or respiration rate as compared to a genomically-unmodified plant of the same genotype, using anti-sense nucleotides targeting the Brassica pyruvate dehydrogenase kinase protein, and a ubiquitin or phaseolin gene promoter operatively linked to the means for reducing respiration.

Applicants are reminded that different nucleotide sequences are structurally distinct chemical compounds and are unrelated to one another. These sequences are thus deemed to normally constitute **independent and distinct** inventions within the meaning of 35 U.S.C. 121. Absent evidence to the contrary, each such nucleotide sequence is presumed to represent an independent and distinct invention, subject to a restriction requirement pursuant to 35 U.S.C. 121 and 37 CFR 1.141 et seq.

This requirement is not to be construed as a requirement for an election of species, since each nucleotide sequence is not a member of a single genus of invention, but constitutes an independent and patentably distinct invention.

Claims 2, 11, and 16 specifically utilize sequences selected from among SEQ ID Nos. 1, 2, 3, and 4. Each sequence has a unique nucleotide drawn from a different species. As such, each nucleotide is considered to be patentably distinct. Furthermore, a search of more than one (1) of the sequences presents an undue burden on the Patent and Trademark Office due to the complex nature of the search and corresponding examination of more than one (1) of the claimed sequences, and the use of its antisense sequence in the claimed method. In view of the foregoing, one (1) sequence is considered to be a reasonable number of sequences for examination. Accordingly, Applicants are required to elect one (1) sequence from SEQ ID Nos. Note that this is not a species election.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

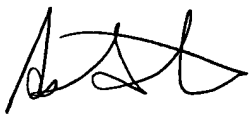
Contact Information

Any inquiry concerning this or earlier communications from the Examiner should be directed to Barba Koroma, whose telephone number is 571-272-0899. The Examiner can normally be reached from 8:00 A.M to 5:30 P.M. If attempts to reach the Examiner by telephone

are unsuccessful, the Examiner's supervisor, Amy Nelson, can be reached at 571-272-0804. The fax phone numbers for the organization where this application or proceeding is assigned is 571 273 8300. Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

BMK



ASHWIN D. MEHTA, PH.D.
PRIMARY EXAMINER

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Zou et al.

Serial No.: 10/642,531

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Confirmation No.: 3187

Examiner: B. Koroma

Group Art Unit: 1638

Attorney Docket No.: 3015-6072US

CERTIFICATE OF MAILING

I hereby certify that this correspondence along with any attachments referred to or identified as being attached or enclosed is being deposited with the United States Postal Service as First Class Mail on the date of deposit shown below with sufficient postage and in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

January 27, 2005
Date

Betty Vowles
Signature

Betty Vowles
Name (Type/Print)

AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the communication of December 30, 2004, applicants submit the following amendments and remarks.

Amendments to the Claims begin on page 2.

Remarks begin on page 5.

IN THE CLAIMS:

1. (original) A genetically transformed plant, comprising:

a means for modulating mitochondrially generated acetyl-CoA and/or respiration rate in the genetically transformed plant as compared to a genomically-unmodified plant of the same genotype; and

a promoter operatively linked to the means for reducing plant respiration.

2. (original) The genetically transformed plant of claim 1, wherein the means for modulating mitochondrially generated acetyl-CoA and/or respiration rate is a nucleic acid incorporated into the plant's genome having a sequence selected from the group of sequences consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3 and SEQ ID NO:4.

3. (original) The genetically transformed plant of claim 1, wherein the plant selected from the group consisting of borage, Canola, castor, cocoa bean, corn, cotton, *Crambe* spp., *Cuphea* spp., flax, *Lesquerella* and *Limnanthes* spp., Linola, nasturtium, *Oenothera* spp., olive, palm, peanut, rapeseed, safflower, soybean, sunflower, tobacco, *Vernonia* spp., wheat, barley, rice, oat, sorghum, rye, and other members of the *Gramineae*.

4. (original) The genetically transformed plant of claim 3, wherein the plant is Canola.

5. (original) The genetically transformed plant of claim 1, wherein the means for modulating mitochondrially generated acetyl-CoA and/or respiration rate includes a gene encoding a pyruvate dehydrogenase kinase oriented in an anti-sense direction.

6. (original) The genetically transformed plant of claim 1, wherein the promoter is a ubiquitin gene promoter.

7. (original) The genetically transformed plant of claim 1, wherein the promoter is a phaseolin promoter.

8. (original) A process for modulating mitochondrially generated acetyl-CoA and/or respiration rate in a transgenic plant, the process comprising:
cloning a gene encoding a *Brassica* pyruvate dehydrogenase kinase protein into a vector;
positioning the gene in an anti-sense orientation; and
transforming a plant with the vector to produce the transgenic plant.

9. (original) The process according to claim 8, further comprising:
linking a promoter to the gene.

10. (original) The process according to claim 9, wherein the promoter is a ubiquitin gene promoter or a phaseolin promoter.

11. (original) The process according to claim 8, wherein the gene has a sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3 and SEQ ID NO:4.

12. (original) The process according to claim 8, wherein the plant is selected from the group consisting of borage, Canola, castor, cocoa bean, corn, cotton, *Crambe* spp., *Cuphea* spp., flax, *Lesquerella* and *Limnanthes* spp., Linola, nasturtium, *Oenothera* spp., olive, palm, peanut, rapeseed, safflower, soybean, sunflower, tobacco, *Vernonia* spp., wheat, barley, rice, oat, sorghum, rye, and other members of the *Gramineae*.

13. (original) The process according to claim 12, wherein the plant is Canola.

14. (original) A transgenic plant obtained by the process according to claim 8.

15. (original) A process for modulating mitochondrially generated acetyl-CoA and/or respiration rate in a transgenic plant, the process comprising:
cloning a gene encoding a *Brassica* pyruvate dehydrogenase kinase protein into a vector;
reducing production of the *Brassica* pyruvate dehydrogenase kinase protein in the transgenic plant; and
transforming the vector into a plant to produce the transgenic plant.

16. (original) The process according to claim 15, wherein the gene has a sequence selected from the group of sequences consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3 and SEQ ID NO:4.

17. (original) The process according to claim 15, wherein the plant is selected from the group consisting of borage, Canola, castor, cocoa bean, corn, cotton, *Crambe* spp., *Cuphea* spp., flax, *Lesquerella* and *Limnanthes* spp., Linola, nasturtium, *Oenothera* spp., olive, palm, peanut, rapeseed, safflower, soybean, sunflower, tobacco, *Vernonia* spp., wheat, barley, rice, oat, sorghum, rye, and other members of the *Gramineae*.

18. (original) The process according to claim 17, wherein the plant is Canola.

19. (original) The process according to claim 15, wherein the step for reducing production of the *Brassica* pyruvate dehydrogenase kinase protein comprises positioning the gene encoding the *Brassica* pyruvate dehydrogenase kinase protein in an anti-sense orientation in the vector.

20. (original) A transgenic plant produced by the process according to claim 15.

21. (new) A combination of DNA fragments comprising SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3 and SEQ ID NO:4.

REMARKS

The communication of December 30, 2004, has been received and reviewed. Claims 1-20 are currently pending and are subject to a restriction requirement. New claim 21 has been added as set forth herein. Reconsideration is requested.

Responsive to the restriction requirement, applicants elect, with traverse, SEQ ID NO: 1. This election is made with traverse since the Commissioner has determined that up to ten nucleotide sequences will be examined in a single application, it would not be an undue burden on the Examiner to examine four sequences, and it would be an undue burden on the applicants to require the applicants to file, prosecute and pay for four separate applications to have SEQ ID NOS: 1-4 examined.

The Commissioner for Patents recognized this burden on the biotechnology industry. Thus, "the Commissioner has decided *sua sponte* to partially waive the requirements of 37 C.F.R. 1.141 *et seq.* and permit a reasonable number of such nucleotide sequences to be claimed in a single application... [a]ccordingly, in most cases, up to **ten** independent and distinct nucleotide sequences will be examined in a single application **without restriction.**" (M.P.E.P. § 803.04; *see also*, MPEP § 2434, allowing, "in most cases, up to 10 independent and distinct nucleotide sequences" to be examined in a single application) (emphasis added). As such, applicants request examination of only **four** sequences (SEQ ID NOS: 1-4).

Further, since SEQ ID NOS: 1-4 are related, it should not be an undue burden for the Examiner to examine the four sequences together. For instance, SEQ ID NOS: 1-4 are PDHK cDNAs of *Brassica napus*, *Brassica rapa*, *Brassica oleracea* and *Brassica carinata*, respectively, and are related in that the sequences encode a similar protein (*i.e.*, PDHK) and the sequences are all of a single genus (*i.e.*, Brassica). (*See*, Sequence Listing of as-filed Specification).

In order to get SEQ ID NOS: 1-4 examined, new claim 21 directed towards a combination of DNA fragments comprising SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3 and SEQ ID NO:4 has been added. As stated in the M.P.E.P. "[i]f the selected combination contains ten or fewer sequences, **all of the sequences** of the combination **will be searched.**" (M.P.E.P. § 803.04) (emphasis added).

Applicants also question the statutory and regulatory basis for the finding that each

sequence in the application constitutes an independent and distinct invention within the meaning of 35 U.S.C. § 121. (*cf*, M.P.E.P. § 803.04 (wherein ten nucleotide sequences are allowed in one application)). Thus, applicants respectfully request the Examiner to provide the statutory and regulatory basis for the instant "sequence election."

As stated in the statute "if two or more independent and distinct inventions are claimed in one application, the Director may require the application to be restricted to one of the inventions." (35 U.S.C. § 121). The rules implementing the statue recite "if two or more independent and distinct inventions are claimed in a single application, the examiner in an Office action will require the applicant in the reply to that action to elect an invention to which the **claims** will be restricted" (37 C.F.R. § 1.142) (emphasis added) and "in the first action on an application containing a generic claim to a generic invention (genus) and claims to more than one patentably distinct species embraced thereby, the examiner may require the applicant in the reply to that action to elect a species of his or her invention to which his or her claim will be restricted." (*Id.* at § 1.146). Although a generic claim may include separate species, the generic claim cannot, by rule, embrace more than one invention. Thus, since SEQ ID NOS: 1-4 are embraced by a single claim, they cannot be separate inventions.

Accordingly, since the Commissioner decided to aid the biotechnology industry and have ten sequences examined in a single application, SEQ ID NOS: 1-4 are related, and the M.P.E.P. indicates that each sequence in a combination claim of up to ten sequences will be examined, substantive examination of the application (including SEQ ID NOS: 1-4) and reconsideration of the restriction requirement are requested.

CONCLUSION

Should the Office determine that additional issues remain which might be resolved by a telephone conference, the Office is invited to contact the applicant's attorney at the address or telephone number given herein.

Respectfully submitted,

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Date: January 27, 2005
AFN
Document in ProLaw

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,531	08/15/2003	Elizabeth-France Marillia	3015-6072US	3187

24247 7590 04/21/2005

TRASK BRITT
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SALT LAKE CITY, UT 84110

EXAMINER	
KOROMA, BARBA M	

ART UNIT	PAPER NUMBER
1638	

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/642,531	MARILLIA ET AL.	
	Examiner	Art Unit	
	Barba M. Koroma	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/15/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *sequence data - SEQ ID No.1*.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group SEQ ID No. 1, in the paper filed February 1, 2005, is hereby acknowledged. Claims 1-21 have been examined in this Office action.

Response to Traversal on Election of sequence

2. Applicant traversed the restriction requirement on election of sequence on the basis that the Commissioner for Patents has determined that up to 10 nucleotide sequences will be examined in a single application, and that it would not be an undue burden for the Office to examine four sequences. A further basis of traversal is that it would be undue burden on Applicant to file, prosecute, and pay for four separate applications in order to have SEQ ID Nos. 1-4 examined.

Applicant's arguments are not found persuasive because "up to ten nucleotides" includes one nucleotide sequence as required in the restriction election requirement, which meets the Commissioner's requirement.

The examiner maintains that the amount of machine, and personnel time, and the additional amount of physical resources required to prosecute more than one sequence, will make it burdensome to prosecute multiple sequences in a single application.

Since Applicant's ability to pay for patent applications is not a basis for restriction election, Applicant's argument in that regard is not considered. The restriction requirement is hereby maintained and made Final.

Objection to IDS

3. Information Disclosure Statement (IDS) is objected for failure to provide dates for some of the listed documents (See areas crossed out). Correction is requested.

Claim to Priority

4. If applicant desires benefit of a previously filed application under 35 U.S.C. 119e, specific reference to the earlier filed application must be made in the instant application. For benefit claims under 35 U.S.C. 120, 121 or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of the applications. This should appear as the first sentence(s) of the specification following the title, preferably as a separate paragraph unless it appears in an application data sheet. The status of nonprovisional parent application(s) (whether patented or abandoned) should also be included. If a parent application has become a patent, the expression "now Patent No. _____" should follow the filing date of the parent application. If a parent application has become abandoned, the expression "now abandoned" should follow the filing date of the parent application.

If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be

submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A benefit claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed benefit claim under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Claim Rejections 35 USC 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims, 1, 3-10, 12-15, and 17-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contain subject matter which were not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The Federal Circuit has recently clarified the application of the written description requirement. The court stated that a written description of an invention "requires a precise definition, such as by structure, formula, [or] chemical name, of the claimed subject matter sufficient to distinguish it from other materials." University of California v. Eli Lilly and Co., 119 F.3d 1559, 1568; 43 USPQ2d 1398, 1406 (Fed. Cir. 1997). The court also concluded that "naming a type of material generally known to exist, in the absence of knowledge as to what that material consists of, is not a description of that material." Id. Further, the court held that to adequately describe a claimed genus, Patent Owner must describe a representative number of the species of the claimed genus, and that one of skill in the art should be able to "visualize or recognize the identity of the members of the genus." Id.

See also MPEP Section 2163, page 156 of Chapter 2100 of the August 2001 version, column 2, bottom paragraph, where it is taught that:

[T]he claimed invention as a whole may not be adequately described where an invention is described solely in terms of a method of its making coupled with its function and there is no described or art-recognized correlation or relationship between the structure of the invention and its function. A biomolecule sequence described only by a functional characteristic, without any known or disclosed correlation between that function and the structure of the sequence, normally is not a sufficient identifying characteristic for written description purposes, even when accompanied by a method of obtaining the claimed sequence.

See the Written Description Requirement Guidelines published in Federal Register/ Vol. 66, No. 4/ Friday January 5, 2001/ Notices: pp. 1099-1111.

The claims are broadly drawn to a genetically modified pant comprising a means for modulating mitochondrially generated acetyl-coA and/or respiration rate, and a process for modulating mitochondrially generated acetyl coA and/or respiration rate in a transgenic plant.

The specification describes nucleic acids encoding Brassica PDHK (of SEQ ID No. 1, 2, 3, and 4), and plants transformed therewith.

The specification does not describe other nucleic acids encoding Brassica PDHK or other nucleic acids that can be used to modulate mitochondrially generated acetyl coA and/or respiration rate in plants.

The specification fails to provide an adequate written description of the genus of nucleic acids, and therefore the claimed plants transformed therewith, are also inadequately described. Accordingly, one skilled in the art would not have recognized Applicant to have been in possession of the claimed invention at the time of filing.

6. Claims 1, 3-10, 12-15, 17-20, are rejected are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for SEQ ID No. 1, does not reasonably provide enablement for other nucleic acids. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and or use the invention commensurate in scope with these claims.

The claimed invention is not supported by an enabling disclosure taking into account the *Wands* factors. *In re Wands,* 858/F.2d 731, 8 USPQ2d 1400 (Fed. Cir. 1988). *In re Wands* lists

a number of factors for determining whether or not undue experimentation would be required by one skilled in the art to make and/or use the invention. The factors to be considered are as follows: Lack of guidance, State of the prior art, Nature of the invention, Unpredictability of the art, Quantity of experimentation necessary.

The claims are broadly drawn to a genetically transformed plant comprising a means for modulating mitochondrially generated acetyl-coA and/or respiration rate, where the said means is operably-linked to a promoter, a process for modulating mitochondrially-generated acetyl-coA comprising cloning a gene encoding Brassica pyruvate dehydrogenase kinase in the antisense orientation and transforming a plant with a vector.

The PDKH gene was cloned from *Brassica napus* (SEQ ID No.1) (example 1, page 9-10). The same approach was employed for cDNA cloning and sequence analysis of PDHK for *Brassica rapa* PDHK gene (SEQ ID No. 2) (example II, PAGE 10), *B. oleracea* (SEQ ID No. 3), *B. carinata* (SEQ ID No. 4) (example IV, page 11), *B. nigra, juncea, oleifera, balearica, cretica, elongate, tourneforii, and biennis* (examples V-VIII) (page 11). The specification teaches modulation of the oil content of multiple species of plants using anti-sense nucleic acid constructs of SEQ ID No. 1, 2, 3, or 4 (example IX, pages 11-12, bridging paragraph).

The specification does not provide guidance on other nucleic acids encoding Brassica PDHK or other nucleic acids that can be used to modulate mitochondrially generated acetyl coA and/or respiration rate in plants.

Lack of guidance: The specification does not teach how to modulate mitochondrially-generated acetyl-coA and/or respiration rate in a genetically transformed plant by transforming

plants with any and all means operatively linked to a promoter; and the specification doe not teach a combination of DNA fragments of SEQ I D Nos. 1-4.

State of the prior art: The method of modulating respiration using unidentified multiple heterologous sequences in a vector used to transform a plant for modulating mitochondrially generated acetyl-coA and/aor respiration rate, is not taught in the prior art.

Nature of the invention: Since the alteration or enhancement of the metabolic function of a transformed plant cannot happen without following tangible method steps, including all necessary genes and proteins, one skilled in the art would not know how to make and use the plants encompassed by the broad claims.

U*npredictability of the art*: Grof et al (Plant physiol. 1995. 108:1623-1629) teach that the catalytic activity of mitochondrial pyruvate dehydrogenase is variable during early development (page 1624, second paragraph). The variable nature of activity of pyruvate dehydrogenase kinase underscore the unpredictability of outcome in transformants.

Q*uantity of experimentation necessary*: It would require numerous experimental approaches, undue trial and error, involving thousands of unidentified DNA sequences, and multiples of transformation events, to determine which nucleic acids would modulate mitochondrially-generated acetyl-coA and/or respiration rate as encompassed by the broad claims. In the absence of this information, one skilled in the art would not know how to make and use the invention as claimed. See Genentech, Inc. v. Novo Nordisk, A/S, 42 USPQ2d 1001, 1005 (Fed. Cir. 1997), which teaches that "the specification, not the knowledge of one skilled in the art" must supply the enabling aspects of the invention. Given the breadth of the claims and

the lack of guidance of the specification as discussed above, it would require undue experimentation to make and use the invention as claimed.

Claim Rejections 35 USC 101

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, and 10-14 of U.S. Patent Application No. 10222075. Although the conflicting claims are not identical, they are not patentably distinct from each other because SEQ ID No. 1 of the claimed invention has a 100% match with SEQ ID No. 1 of the cited reference (Application No. 10222075). The plants and processes encompassed in the instant claims are thus obvious over the claims of the copending application.

Claim Rejection 35 USC 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-6, 8-10, 12-15, and 17-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Randall et al (US Patent No. 6265636. July 24, 2001).

The claims are broadly drawn to a means or a process for modulating mitochondrially-generated acetyl-coA and or respiration rate by transforming a plant with a gene encoding a Brassica pyruvate dehydrogenase kinase gene, or by transforming a plant including canola, with said means operatively linked to a promoter.

Randall et al teach methods and compositions relating to altering carbohydrate metabolism and or composition of plants. The invention provides isolated nucleic acids and their encoded proteins, expression cassettes, host cells, transgenic plants, and antibody compositions (See especially column 2, sections (a) and (b), lines 30-39). Randall et al teach transformation process (detailed dexcription of invention, starting column 14)), ubiquitin promoter (column 26, lines 33-46), and several overlapping plants (claim 26, column 68).

This reference anticipates the instant invention by teaching an isolated nucleic acid that encodes pyruvate dehydrogenase kinase used to transform a plant, inherently modulating such metabolic activities as respiration rate.

9. Claims 1, 3, 5, 6, 8, 12, 14, 15, and 17-20, are rejected under 35 U.S.C. 102(e) as being anticipated by Zou et al (US Patent No. 6500670. Filing date February 9, 1998).

The claims are broadly drawn to genetically transformed plant comprising a means for modulating mitochondrially generated acetyl-coA and or respiration rate, said means operably-linked to a promoter; and the process of transforming a plant with a gene encoding a Brassica pyruvate dehydrogenase kinase.

Zou et al teach the isolation, purification, characterization and use of a mitochondrial pyruvate dehydrogenase kinase (PDHK) gene from the Brassicaceae. The invention includes isolated and purified DNA and relates to methods of regulating respiration rate amongst others in plants transformed with the gene (see abstract; claims 1-36 of columns 39-42; experimental procedures, columns 18-22). This reference anticipates instant invention by teaching an isolated nucleic acid from Arabidopsis (Brassica sp.) that encodes pyruvate dehydrogenase kinase used to transform a plant, thereby altering its metabolic activity, including respiration rate.

Conclusion

11. No claims are found allowable. SEQ ID No. 1 is deemed free of the prior art.

Contact Information

12. Any inquiry concerning this or earlier communications from the Examiner should be directed to Barba M. Koroma, whose telephone number is 571-272-0899. The Examiner can normally be reached from 8:00 A.M to 5:30 P.M. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Amy Nelson, can be reached at 571-272-0804. The fax phone numbers for the organization where this application or proceeding is assigned are 571 273 8300. Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov.

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bmk

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SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

PTO/SB/08A (10-01)
Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet | 1 | of | 2

Complete if Known	
Application Number	Not yet assigned
Filing Date	August 15, 2003
First Named Inventor	Zou et al.
Group Art Unit	Unknown
Examiner Name	Unknown
Attorney Docket Number	3015-6072US

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number - Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
RM		US- 5,102,796	04/07/1992	Hall et al.	
		US- 5,504,200	04/02/1996	Hall et al.	
		US- 5,510,474	04/23/1996	Quail et al.	
		US- 5,591,605	01/07/1997	Hall et al.	
		US- 5,614,399	03/25/1997	Quail et al.	
		US- 6,054,574	04/25/2000	Quail et al.	
RM		US- 6,265,636 B1	07/24/2001	Randall et al.	
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FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] - Number[4] - Kind Code[5] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
RM		WO 98/35044 A1	08-13-1998	National Research Council of Canada		

Examiner Signature		Date Considered	9/15/05

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

PTO/SB/08B(10-01)
Approved for use through 10/31/2002. OMB 0651-0031
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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 2 of 2

Complete if Known	
Application Number	Not yet assigned
Filing Date	August 15, 2003
First Named Inventor	Zou et al.
Group Art Unit	Unknown
Examiner Name	Unknown
Attorney Docket Number	3015-6072US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
BMK		Kirill M. Popov et al., "Primary Structure of Pyruvate Dehydrogenase Kinase Establishes a New Family of Eukaryotic Protein Kinases," The Journal of Biological Chemistry, Vol. 268, No. 35, Issue of December 15, pp. 26602-26606, 1993.	
		Ramavedi Gudi et al., "Diversity of the Pyruvate Dehydrogenase Kinase Gene Family in Humans," The Journal of Biological Chemistry, Vol. 270, No. 48, Issue of December 1, pp. 28989-28994, 1995.	
		E. Ellen Reid et al., "Pyruvate Dehydrogenase Complex from Higher Plant Mitochondria and Proplastids," Plant Physiol. (1977) Vol. 59, pp. 842-848.	
		Christopher P.L. Grof. et al., "Mitochondrial Pyruvate Dehydrogenase," Plant Physiol. (1995) Vol. 108, pp. 1623-1629.	
		Tom Newman et al., "Genes Galore: A Summary of Methods for Accessing Results from Large-Scale Partial Sequencing of Anonymous Arabidopsis cDNA Clones, Plant Physiol. (1994) Vol. 106, pp. 1241-1255.	
		2002 Life Technologies Product catalog, 3' RACE System for Rapid Amplification of cDNA Ends, 21-25, 1 page.	
		2002 Life Technologies Product catalog, 5' RACE System for Rapid Amplification of cDNA Ends, Version 2.0, 21-22, 1 page.	
		2002 Life Technologies Product catalog, M-MLV Reverse Transcriptase, 16-25, 1 page.	
		ZOU, Jitao et al., "Effects of antisense repression of an Arabidopsis thaliana pyruvate dehydrogenase kinase cDNA on plant development," National Research Council of Canada, Plant Biotechnology Institute, 110 Gymnasium Place, Saskatoon, Saskatchewan, Canada, S7N 0W9, Plant Molecular Biology 41:837-849, 1999, © 1999 Kluwer Academic Plubishers, Printed in the Netherlands.	
		ZOU, Jitao et al., Cloning and characterization of an Arabidopsis thaliana mitochondrial pyruvate dehydrogenase kinase gene and effects of antisense repression on plant development and seed oil content. ABIC, Saskatoon, SK, June 9-12, 1998.	
		ZOU, J-T et al., Does Mitochondrially-Generated Acetate Contribute to Plastidial Fatty Acid Biosynthesis? Antisense repression of an Arabidopsis thaliana mitochondrial pyruvate dehydrogenase kinase (PDHK) gene and its effects on oil content and plant development, poster and abstract B71; 13th International Symposium on Plant Lipids, Sevilla, Spain, July 5-10, 1998.	
		THELEN, Jay J. et al., "Pyruvate dehydrogenase kinase from Arabidopsis thaliana: a protein histidine kinase that phosphorylates serine residues," Biochem. J. (2000) 349, 195-201, (Printed in Great Britain).	
		MOONEY, Brian P. et al., Biochemistry Department, University of Missouri, Columbia Missouri 65211; and Plant Genetics Research Unit, USDA, ARS, Columbia, Missouri, 65211, "Histidine Modifying Agents Abolish Pyruvate Dehydrogenase Kinase Activity," Biochemical and Biophysical Research Communications, 267, 500-503 (2000).	
BMK		THELEN, Jay J. et al., "Molecular Analysis of Two Pyruvate Dehydrogenase Kinases from Maize," The Journal of Biological Chemistry, Vol 273, No. 41, Issue of October 9, 1998, pp. 26618-26623.	
		Printout of GenBank Accession No.: AF038585.	
		Printout of GenBank Accession No.: AF038586.	
BMK		MARILLIA et al., Characterization of an Arabidopsis thaliana mitochondrial pyruvate dehydrogenase kinase gene and effects of antisense repression on plant development, Abstract and poster #24, pp. 99, Proceedings of the Canadian Society of Plant Physiologists Meeting, Plant Biology Canada '99, Saskatoon, SK, June 19-23, 1999.	
		MARILLIA et al., Metabolic Engineering of Brassica Seeds Oils: Improvement of Oil Quality and Quantity and Alteration of Carbon Flux, Plant Genetic Engineering: Toward the Third Millenium, Elsevier Science B.V., pp. 182-188.	
BMK		MARILLIA, et al., "Biochemical and physiological studies of *Arabidopsis thaliana* transgenic lines with repressed expression of the mitochondrial pyruvate dehydrogenase kinase," Journal of Experimental Botany, http://jxb.oupjournals.org/cgi/content/abstract/54/381/259, 2 pages (8/14/03).	

Examiner Signature		Date Considered	4/15/05

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] Unique citation designation number (optional). [2] Applicant is to place a check mark here if English language Translation is attached.